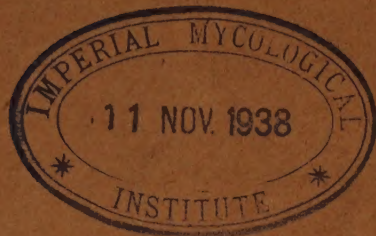


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NOTES ON *POLYPORUS SQUAMOSUS*, HUDS.

[TEXT-FIG. 44.]

BY F. T. BROOKS.

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November and December, 1909].

NOTES ON *POLYPORUS SQUAMOSUS*, HUDS.

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[TEXT-FIG. 44.]

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THE following notes were made last summer in regard to some sporophores of *Polyporus squamosus* which developed under conditions particularly favourable for observation. In regard to the liberation of spores, these remarks are confirmatory of Buller's extensive work¹ (reviewed in the present issue) on this portion of the general biology of certain groups of the Hymenomycetes.

A cylindrical block of *Acer Negundo* about a foot in diameter had been brought into a room during the early part of May for the use of the Department of Forestry at Cambridge. On May 18th two groups of fungus fructifications which evidently belonged to *Polyporus squamosus* were seen to be arising from the bark. When enquiries were made at the Botanic Gardens whence the block had come I learnt that the specimen had been cut from a tree which had been attacked *in situ* by this fungus. One group of fructifications consisted of a bulbous base from which three stalked sporophores of different sizes arose, the other comprised a similarly swollen base and a single rudimentary pileus. During the three weeks that the fructifications were kept under observation the

¹ Buller, A. H. R. "Researches on Fungi," Longman & Co., 1909.

block of wood remained in a constant position in a dimly lighted room; the larger group of sporophores faced the window, while the smaller one was on the opposite and darker side of the block. Throughout the course of the observations the single sporophore which was on the side of the wood remote from the light remained in a rudimentary condition. This is to be accounted for presumably by the diversion of the stream of nutritive material derived by the sterile mycelium in the wood, to the other group of sporophores which were further advanced in development. It is not likely that diminished light on that side caused a cessation of further growth, because Buller has shewn¹ that as long as feeble light is allowed to impinge upon the sporophore for a short time when young, the fructification will then develop normally although kept in complete darkness.

The dimensions of two of the sporophores of the larger group of fructifications were taken daily by measuring the two longest axes of each at right angles to one another. The third sporophore of this group grew for a short time and then its development ceased, doubtless on account of the available food material being used by the larger pilei. The temperature of the room in which the observations were made varied between 7·8°C and 17·3°C. The following table indicates the amount of linear growth which occurred in the two pilei—called A and B, during the period of observation. On May 23rd and 24th respectively the pilei ceased to increase in area.

PILEUS A.

| | | | | Length of Axis I. | | Length of Axis II. |
|-----------------------|-----|-----|-----|----------------------|-----|-----------------------|
| May 10th | ... | ... | ... | 5·8 cm. | ... | 8·1 cm. |
| May 23rd | ... | ... | ... | 18·3 cm. | ... | 27·5 cm. |
| Growth during 13 days | ... | | | 12·5 cm. | ... | 19·4 cm. |

PILEUS B.

| | | | | Length of Axis I. | | Length of Axis II. |
|-----------------------|-----|-----|-----|----------------------|-----|-----------------------|
| May 10th | ... | ... | ... | 3·6 cm. | ... | 4·7 cm. |
| May 24th | ... | ... | ... | 13·1 cm. | ... | 18·7 cm. |
| Growth during 14 days | ... | | | 9·5 cm. | ... | 14·0 cm. |

These figures indicate the rapidity with which the fructification of this fungus grows. The daily measurements are being examined, and it is hoped that they will throw some light on the manner in which growth takes place in the sporophore of *Polyporus squamosus*.

¹ Buller, A. H. R. Loc. cit., p. 59.

It may be pointed out here that an appreciable falling off in growth was observed during the daytime.

On May 23rd, *i.e.*, about the time when growth ceased, spores began to collect upon a piece of black paper placed below the fructifications. No deposition of spores in quantity occurred before this date. On closer examination, the spore cloud already described by Buller¹ as being discharged from *Polyporus squamosus* could be seen distinctly. This faint cloud may be compared with the smoke arising from a smouldering tobacco pipe. The discharge of spores in this manner continued without interruption for a period of ten days. Buller mentions one case in which the spore cloud was emitted for sixteen days. The floor in the vicinity of the block of wood became white with spores. An idea of the enormous quantity of spores produced can be gathered from the accompanying photograph (Text-fig. 44).



Text-fig. 44. "Spore-cloud" of *Polyporus squamosus*. Below the sporophore was placed a piece of black paper, which, together with the surrounding objects, became covered with a thick layer of spores. The paper was so thickly coated that it was possible to write an inscription in the spore covering.

Another interesting phenomenon exhibited by these fructifications was the production of drops of liquid on the under surface. It was noted that these drops formed only towards the end of the period of growth in area of the pileus and after such growth had ceased. This exudation of water is presumably analogous to that

¹ Buller, A. H. R. Loc. cit., p. 89.

which takes place through the hydathodes of the higher plants. The sporophores of other Polyporeæ often liberate drops of fluid from their hymenial surface and in the case of *Polyporus hispidus* considerable quantities of liquid are known to drip away in this manner. The exudation of water from the hyphæ of other fungi is of common occurrence. One may recall the case of *Pilobolus crystallinus*, on the sporangiophores of which drops of liquid are frequently seen.
